Appendix F

Aquatic Species Use Table

Timing of Fish in Klamath River

Species/ **Life stage**	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Spring Chinook Type I												
Adult migration	xx	xx							xx	xx	xx	xx
Adult spawning			x**x**	**x**								
Incubation			xx	xx	**xx**	**xx**	**xx**	**xx**	**xx**	xx	x	
Fry emergence						xx	xx	**xx**	**xx**	**xx**	xx	
Rearing	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Juv. outmigration							x	xx	xx	xx	**xx**	xx
Spring Chinook Type II												
Adult migration		x	xx	x								
Adult spawning			xx	xx								
Incubation			xx	xx	xx	xx	xx	xx	xx			
Fry emergence								xx	xx	x		
Rearing	xx	xx						xx	xx	xx	xx	xx
Juv. outmigration			xx	xx	x							
Fall Chinook Type II (fall juvenile migrant)												
Adult migration		xx	**xx**	**xx**								
Adult spawning				**xx**	x							
Incubation				xx	xx	xx	xx	xx	xx			
Fry emergence								xx	**xx**	**xx**		
Rearing	xx	xx						xx	xx	xx	xx	xx
Juv. outmigration			xx	xx	xx							

Timing of Fish in Klamath River

Species/ **Life stage**	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Fall Chinook Type I (ocean type)												
Adult migration		xx	**xx**	**xx**								
Adult spawning				**xx**	x							
Incubation				xx	xx	xx	xx	xx	xx			
Fry emergence							xx	**xx**	**xx**	**xx**		
Rearing							xx	**xx**	**xx**	**xx**	**xx**	**x**
Juv. outmigration	**xx**	x								xx	**xx**	**xx**
Coho												
Adult migration				xx	**xx**	**xx**	xx					
Adult spawning					xx	**xx**	xx					
Incubation					xx	xx	xx	xx	xx			
Fry emergence								**x x**	**xx**	x		
Rearing	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Juv. outmigration	xx							xx	**xx**	**xx**	xx	xx
Steelhead Fall/Winter[1]												
Adult migration			xx	xx	xx							
Adult spawning						xx	xx	xx	**xx**	xx		
Incubation						xx	xx	xx	xx	xx		
Fry emergence									xx	xx	**xx**	xx
Rearing	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Juv. outmigration	x								xx	xx	xx	xx

Timing of Fish in Klamath River

Species/ **Life stage**	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Redband/ Rainbow Trout[2]												
Adult migration				xx	xx			x	**xx**	**x**x	x	
Adult spawning								x	xx	xx	x	
Incubation									xx	xx	xx	xx
Fry emergence	x									xx	xx	xx
Rearing	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Juv. Emigration[3]	xx	xx	xx	xx						xx	xx	xx
Lamprey[4]	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Adult migration	x[5]	x[5]	x[5]			xx	xx	xx	xx	xx	xx	xx
Adult spawning	x								x	xx	xx	xx
Incubation	xx								x	xx	xx	xx
Rearing	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Juv. Emigration[6]	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Suckers[7]												
Adult migration								x	xx	xx	x	
Adult spawning									xx	xx	xx	
Incubation									xx	xx	xx	x
larval emergence										xx	xx	xx
Rearing	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx

1. The mainstem Klamath River tributaries have the highest incidence of a half-pounder life history within the Klamath –Trinity system. Approximately 90 to 100percent of steelhead juveniles from Iron Gate Hatchery and nearby tributaries return to fresh water four to five months later as half-pounders (Shaw et al 1998).
2. Limited trout spawning has been observed in the mainstem Klamath River within the Project area (J.C. Boyle bypass reach). Spawning does occur in Shovel and Spencer Creeks.
3. The resident trout juvenile emigration indicates when fish are leaving their natal streams and entering the mainstem Klamath River.
4. The information in this table is for the anadromous Pacific lamprey (*Lamptera tridentata*) which occurs below Iron Gate Dam (IGD). Above IGD, potentially five lamprey species reside in the upper Klamath Basin (Kostow 2002). The nonparasitic Pit-Klamath brook lamprey (*Lampetra lethophaga*) and the parasitic Klamath River lamprey (*Lampetra similis*) are considered sister species of the Pacific lamprey. The Pit-Klamath brook lamprey is found in the upper Klamath Basin upstream of the Keno vicinity while the Klamath River lamprey distribution is

from upper Klamath Basin down to the vicinity of Happy Camp, CA. The Miller Lake lamprey (*Lampetra minima*) was thought to be endemic to Miller Lake (upper Klamath Basin), was extirpated from Miller Lake by ODFW in 1958 and declared extinct in 1973. However, this species was rediscovered in the 1990's and the expanded distribution includes Miller Lake basin, upper Klamath Marsh, the Williamson River system upstream of the marsh, and throughout the upper Sycan River system. The other two recognized species in the upper Klamath Basin include the nonparasitic lamprey (*Lamptera folletti*) and a parasitic species currently called *Lamptera tridentata. L. folletti* was described in 1976 with a distribution in Lost River and the Klamath Basin around the lower Klamath Marsh near Klamath Falls. However, it is not known whether *L. folletti* is present, or ever was present. The other species is called *L. tridentata* as it was once considered to be a landlocked population of *L. tridentata*. Evidence now suggests that this is an entirely separate species that never exhibited anadromy; it does, however, have a migratory life history pattern, moving between various freshwater habitats to spawn and rear. For the purposes of this table, the life history of the Pacific lamprey is a surrogate for the other lamprey species since very little is known about their life history.

5. The river lamprey (*L ayresi*) has not been found in the Klamath Basin but its range is reported to be Sacramento River to SE Alaska. The extension of adult lamprey migration will cover this species if it is present.
6. This includes both ammocoetes and eyed lamprey migration.

The Klamath Basin contains four recognized species of catostomids: Klamath smallscale sucker, Klamath largescale sucker, the shortnose sucker, and the Lost River sucker. Both the shortnose sucker and the Lost River sucker are federally listed endangered species and this table represents their life history strategies (USFWS 1993).